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EXAMINER
KIM. PAUL

ART UNIT	PAPER NUMBER
2161	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
 Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any . earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 December 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-43</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-43</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Office action is responsive to the following communication: Amendment filed on 5

December 2006.

2.   Claims 1-43 are pending and present for examination. Claims 1, 15, 29, and 43 are independent.

Election/Restrictions

3.   Applicant's election of claims 1-43 in the reply filed on 5 December 2006 is acknowledged.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction

requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Response to Amendment

4.   Claims 1-43 have been elected.

5.   Claims 44-68 have been cancelled.

6.   No claims have been added.

7.   No claims have been amended.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis

for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   **Claims 1-3, 6-17, 20-31, and 34-43** are rejected under 35 U.S.C. 102(e) as being anticipated

by DeKoning (U.S. Patent No. 6,691,245, hereinafter referred to as DeKoning), filed on 10 October 2000,

and issued on 10 February 2004.

10.   **As per independent claims 1, 15, 29, and 43**, DeKoning teaches:

A method, comprising:

> receiving a first data being written to a data block on a first storage volume {See
> DeKoning, C7:L66-C8:L1, wherein this reads over "all new written data is forwarded to the remote
> storage device 110 for mirrored storage updating"};

> indicating the data block being stored on a second storage image, the indication
> information being associated with a first storage image which is a copy on write
> snapshot {See DeKoning, C8:L24-44}; and

> writing the first data to the data block on the second storage image {See DeKoning,
> C8:L13-17, wherein this reads over "new data 152 from the host device 106 that is stored in local
> volume 128 is mirrored in mirrored volume 132"}.

11.   **As per dependent claims 2, 7, 16, 21, 30, and 35**, DeKoning teaches:

The method of claim 1, wherein the indicating comprises:

> determining whether the data block is stored on the first storage image {See DeKonig,
> C8:L52-62}; and

> updating the indication information to indicate the data block is stored on the second
> storage image, if the data block is stored on the first storage image[1].

12.   **As per dependent claims 3, 8-10, 17, 22-24, 31, and 36-38**, the claims do not carry

patentable weight since the claim are, respectively, dependent upon claims 2, 16, and 30 which

optionally recite the step of updating the indication information. Therefore, since the step of updating is

optional and not necessary to the claimed invention, the claims are rejected.

Additionally, it is noted that claims 3, 8, 17, 22, 31, and 36 further contain claim language (e.g.

"if" statements) which may be deemed optional.

13.   **As per dependent claims 6, 20, and 34**, DeKoning teaches:

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[1] The Examiner notes that lines 5-8 of the claims present optionally recited language in that an update of
the indication information only occurs "if the data block is stored on the first storage image."
Accordingly, since said optionally recited language lacks patentable weight, prior art references will not
be applied for the purposes of this examination.

The method of claim 1, further comprising:

receiving a second data being written to the data block on a second storage volume
{See DeKoning, C9:L10-13, wherein this reads over "the client devices 104 (FIG. 1) switch from using the local host and storage devices . . . to using the remote host and storage devices . . . for primary data storage"};

updating the indication information to indicate the data block is stored on the second storage image {See DeKoning, C9:L13-18, wherein this reads over "data and information is exchange between the business continuance client . . . the remote host device 109 and the remote storage device 110 according to the exemplary data flow chart show in FIG. 5"};

replicating an existing data stored on the data block of the second storage image to the first storage image {See DeKoning, C9:L39-44, wherein this reads over "[t]he remote storage device 110 replaces the data in the affected data volumes 126 with the volume image"}; and

writing the second data to the data block on the second storage image {See DeKoning, C9:L10-13, wherein this reads over "the client devices 104 (FIG. 1) switch from using the local host and storage devices . . . to using the remote host and storage devices . . . for primary data storage"}.

14.   **As per dependent claims 11, 25, and 39,** DeKoning teaches:

The method of claim 1, further comprising:

receiving a request to read from a data block on the first storage volume {See DeKoning, C6:L63-65, wherein this reads over "The data volumes 124 are typically accessed by the local host device 106 (FIG. 1) according to access requests from the client devices 104 (FIG. 1). After failure of the local host and/or storage device 106 or 108 (FIG. 1), the data volumes 126 are typically accessed by the remote host device 109 according to the access requests from the client devices 104."};

determining whether the data block is stored on the first storage image or on the second storage image, based on indication information associated with the first storage image {See DeKoning, C6:L63-65, wherein this reads over "The data volumes 124 are typically accessed by the local host device 106 (FIG. 1) according to access requests from the client devices 104 (FIG. 1). After failure of the local host and/or storage device 106 or 108 (FIG. 1), the data volumes 126 are typically accessed by the remote host device 109 according to the access requests from the client devices 104."};

reading the data block from the first storage image if the data block is stored on the first storage image[2]; and

reading the data block from the second storage image if the data block is stored on the second storage image.

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[2] The Examiner notes that lines 6-9 of the claims present optionally recited language in that reading the data blocks from the first and second storage image only occur "if the data block is stored on the first storage image" and "if the data block is stored on the second storage image" respectively. Accordingly, since said optionally recited language lacks patentable weight, prior art references will not be applied for the purposes of this examination.

15.   **As per dependent claims 12-14, 26-28, and 40-42**, the claims do not carry patentable

weight since the claim are, respectively, dependent upon claims 11, 25, and 39 which optionally recite

the step of reading data blocks from storage images. Therefore, since the step of reading is optional and

not necessary to the claimed invention, the claims are rejected.

Claim Rejections - 35 USC § 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art
> are such that the subject matter as a whole would have been obvious at the time the invention was made to a
> person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

17.   **Claims 4, 18, and 32** are rejected under 35 U.S.C. 103(a) as being unpatentable over

DeKoning, in view of Mutalik et al (U.S. Patent No. 7,149,787, hereinafter referred to as Mutalik), filed on

7 June 2001, and issued on 12 December 2006.

18.   **As per dependent claims 4, 18, and 32**, while DeKoning fails to expressly disclose the use of

locks in storing data to a data block, Mutalik discloses a means for acquiring and releasing a lock {See

Mutalik, C14:L47-57, wherein this reads over a implementations of a read-lock and a write-lock"}.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify the above invention suggested by DeKoning by combining it with the invention disclosed

by Mutalik. That is, the inclusion of the disclosed invention in Mutalik would provide a means for locking

the second storage image for write purposes.

One of ordinary skill in the art would have been motivated to do this modification so that other

processes and/or users may not access the data block while a write process is underway such that the

data block may not be erroneously corrupted by said other processes and/or users.

19.   **Claims 5, 19, and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over

DeKoning, in view of Mutalik, and in further view of Official Notice.

20.	**As per dependent claims 5, 19, and 33**, while DeKoning and Mutalik fail to expressly disclose that "the lock mechanism is maintained independent to the first and the second storage images," the Examiner takes Official Notice that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have said lock mechanism be separate and independent from the first and second storage images. That is, one of ordinary skill in the art would ably recognize that having an independent lock mechanism such that the lock mechanism not take part in the backup operation.

Conclusion

21.	Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Kim whose telephone number is (571) 272-2737. The examiner can normally be reached on M-F, 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on (571) 272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Kim
Patent Examiner
Art Unit 2161